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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/982,107

DATE: 03/25/2002

TIME: 16:04:38

Input Set : A:\Epi3002e.app

Output Set: N:\CRF3\03252002\I982107.raw

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3 <110> APPLICANT: HIATT, ANDREW C.
4 HEIN, MICH B.
6 <120> TITLE OF INVENTION: METHODS FOR PRODUCING IMMUNOGLOBULINS CONTAINING
7 PROTECTION PROTEINS IN PLANTS AND THEIR USE
9 <130> FILE REFERENCE: EPI3002E
11 <140> CURRENT APPLICATION NUMBER: 09/982,107
12 <141> CURRENT FILING DATE: 2001-10-16
14 <160> NUMBER OF SEQ ID NOS: 19
16 <170> SOFTWARE: PatentIn Ver. 2.1
18 <210> SEQ ID NO: 1
19 <211> LENGTH: 3517
20 <212> TYPE: DNA
21 <213> ORGANISM: Oryctolagus cuniculus
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24 <221> NAME/KEY: CDS
25 <222> LOCATION: (124)..(2445)
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32 gcc atg gct ctc ttc ttg ctc acc tgc ctg gct gtc ttt tca gcg 168
33 Met Ala Leu Phe Leu Thr Cys Leu Leu Ala Val Phe Ser Ala
34 1 5 10 15
36 gcc acg gca caa agc tcc tta ttg ggt ccc agc tcc ata ttt ggt ccc 216
37 Ala Thr Ala Gln Ser Ser Leu Leu Gly Pro Ser Ser Ile Phe Gly Pro
38 20 25 30
40 ggg gag gtg aat gtt ttg gaa ggc gac tcg gtg tcc atc aca tgc tac 264
41 Gly Glu Val Asn Val Leu Glu Gly Asp Ser Val Ser Ile Thr Cys Tyr
42 35 40 45
44 tac cca aca acc tcc gtc acc cgg cac agc cgg aag ttc tgg tgc cgg 312
45 Tyr Pro Thr Thr Ser Val Thr Arg His Ser Arg Lys Phe Trp Cys Arg
46 50 55 60
48 gaa gag gag agc ggc cgc tgc gtg acg ctt gcc tcg acc ggc tac acg 360
49 Glu Glu Glu Ser Gly Arg Cys Val Thr Leu Ala Ser Thr Gly Tyr Thr
50 65 70 75
52 tcc cag gaa tac tcc ggg aga ggc aag ctc acc gac ttc cct gat aaa 408
53 Ser Gln Glu Tyr Ser Gly Arg Gly Lys Leu Thr Asp Phe Pro Asp Lys
54 80 85 90 95
56 ggg gag ttt gtg gtg act gtt gac caa ctc acc cag aac gac tca ggg 456
57 Gly Glu Phe Val Val Thr Val Asp Gln Leu Thr Gln Asn Asp Ser Gly
58 100 105 110
60 agc tac aag tgt ggc gtg gga gtc aac ggc cgt ggc ctg gac ttc ggt 504
61 Ser Tyr Lys Cys Gly Val Gly Val Asn Gly Arg Gly Leu Asp Phe Gly
62 115 120 125
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64 gtc aac gtg ctg gtc agc cag aag cca gag cct gat gac gtt gtt tac 552
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68 aaa caa tat gag agt tat aca gta acc atc acc tgc cct ttc aca tat 600
69 Lys Gln Tyr Glu Ser Tyr Thr Val Thr Ile Thr Cys Pro Phe Thr Tyr
70      145      150      155
72 gcg act agg caa cta aag aag tcc ttt tac aag gtg gaa gac ggg gaa 648
73 Ala Thr Arg Gln Leu Lys Lys Ser Phe Tyr Lys Val Glu Asp Gly Glu
74 160      165      170      175
76 ctt gta ctc atc att gat tcc agc agt aag gag gca aag gac ccc agg 696
77 Leu Val Leu Ile Ile Asp Ser Ser Ser Lys Glu Ala Lys Asp Pro Arg
78      180      185      190
80 tat aag ggc aga ata acg ttg cag atc caa agt acc aca gca aaa gaa 744
81 Tyr Lys Gly Arg Ile Thr Leu Gln Ile Gln Ser Thr Thr Ala Lys Glu
82      195      200      205
84 ttc aca gtc acc atc aag cat ttg cag ctc aat gat gct ggg cag tat 792
85 Phe Thr Val Thr Ile Lys His Leu Gln Leu Asn Asp Ala Gly Gln Tyr
86      210      215      220
88 gtc tgc cag agt gga agc gac ccc act gct gaa gaa cag aac gtt gac 840
89 Val Cys Gln Ser Gly Ser Asp Pro Thr Ala Glu Glu Gln Asn Val Asp
90      225      230      235
92 ctc cga ctg cta act cct ggt ctg ctc tat gga aac ctg ggg ggc tgc 888
93 Leu Arg Leu Leu Thr Pro Gly Leu Leu Tyr Gly Asn Leu Gly Gly Ser
94 240      245      250      255
96 gtg acc ttt gaa tgt gcc ctg gac tct gaa gac gca aac gcg gta gca 936
97 Val Thr Phe Glu Cys Ala Leu Asp Ser Glu Asp Ala Asn Ala Val Ala
98      260      265      270
100 tcc ttg cgc cag gtt agg ggt ggc aat gtg gtc att gac agc cag ggg 984
101 Ser Leu Arg Gln Val Arg Gly Gly Asn Val Val Ile Asp Ser Gln Gly
102      275      280      285
104 aca ata gat cca gcc ttc gag ggc agg atc ctg ttc acc aag gct gag 1032
105 Thr Ile Asp Pro Ala Phe Glu Gly Arg Ile Leu Phe Thr Lys Ala Glu
106      290      295      300
108 aac ggc cac ttc agt gta gtg atc gca ggc ctg agg aag gaa gac aca 1080
109 Asn Gly His Phe Ser Val Val Ile Ala Gly Leu Arg Lys Glu Asp Thr
110      305      310      315
112 ggg aac tat ctg tgc gga gtc cag tcc aat ggt cag tct ggg gat ggg 1128
113 Gly Asn Tyr Leu Cys Gly Val Gln Ser Asn Gly Gln Ser Gly Asp Gly
114 320      325      330      335
116 ccc acc cag ctt cgg caa ctc ttc gtc aat gaa gag atc gac gtg tcc 1176
117 Pro Thr Gln Leu Arg Gln Leu Phe Val Asn Glu Glu Ile Asp Val Ser
118      340      345      350
120 cgc agc ccc cct gtg ttg aag ggc ttt cca gga ggc tcc gtg acc ata 1224
121 Arg Ser Pro Pro Val Leu Lys Gly Phe Pro Gly Gly Ser Val Thr Ile
122      355      360      365
124 cgc tgc ccc tac aac ccg aag aga agc gac agc cac ctg cag ctg tat 1272
125 Arg Cys Pro Tyr Asn Pro Lys Arg Ser Asp Ser His Leu Gln Leu Tyr
126      370      375      380
128 ctc tgg gaa ggg agt caa acc cgc cat ctg ctg gtg gac agc ggc gag 1320

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132	ggg	ctg	gtt	cag	aaa	gac	tac	aca	ggc	agg	ctg	gcc	ctg	ttc	gaa	gag	1368
133	Gly	Leu	Val	Gln	Lys	Asp	Tyr	Thr	Gly	Arg	Leu	Ala	Leu	Phe	Glu	Glu	
134	400					405					410					415	
136	cct	ggc	aat	ggc	acc	ttc	tca	gtc	gtc	ctc	aac	cag	ctc	act	gcc	gag	1416
137	Pro	Gly	Asn	Gly	Thr	Phe	Ser	Val	Val	Leu	Asn	Gln	Leu	Thr	Ala	Glu	
138					420						425					430	
140	gat	gaa	ggc	ttc	tac	tgg	tgt	gtc	agc	gat	gac	gat	gag	tcc	ctg	acg	1464
141	Asp	Glu	Gly	Phe	Tyr	Trp	Cys	Val	Ser	Asp	Asp	Asp	Glu	Ser	Leu	Thr	
142				435						440						445	
144	act	tcg	gtg	aag	ctc	cag	atc	gtt	gac	gga	gaa	cca	agc	ccc	acg	atc	1512
145	Thr	Ser	Val	Lys	Leu	Gln	Ile	Val	Asp	Gly	Glu	Pro	Ser	Pro	Thr	Ile	
146			450							455						460	
148	gac	aag	ttc	act	gct	gtg	cag	gga	gag	cct	gtt	gag	atc	acc	tgc	cac	1560
149	Asp	Lys	Phe	Thr	Ala	Val	Gln	Gly	Glu	Pro	Val	Glu	Ile	Thr	Cys	His	
150		465					470					475					
152	ttc	cca	tgc	aaa	tac	ttc	tcc	tcc	gag	aag	tac	tgg	tgc	aag	tgg	aat	1608
153	Phe	Pro	Cys	Lys	Tyr	Phe	Ser	Ser	Glu	Lys	Tyr	Trp	Cys	Lys	Trp	Asn	
154	480					485					490					495	
156	gac	cat	ggc	tgc	gag	gac	ctg	ccc	act	aag	ctc	agc	tcc	agc	ggc	gac	1656
157	Asp	His	Gly	Cys	Glu	Asp	Leu	Pro	Thr	Lys	Leu	Ser	Ser	Ser	Gly	Asp	
158					500					505						510	
160	ctt	gtg	aaa	tgc	aac	aac	aac	ctg	gtc	ctc	acc	ctg	acc	ttg	gac	tcg	1704
161	Leu	Val	Lys	Cys	Asn	Asn	Asn	Leu	Val	Leu	Thr	Leu	Thr	Leu	Asp	Ser	
162				515						520						525	
164	gtc	agc	gaa	gat	gac	gag	ggc	tgg	tac	tgg	tgt	ggc	gcg	aaa	gac	ggg	1752
165	Val	Ser	Glu	Asp	Asp	Glu	Gly	Trp	Tyr	Trp	Cys	Gly	Ala	Lys	Asp	Gly	
166			530					535					540				
168	cac	gag	ttt	gaa	gag	gtt	gcg	gcc	gtc	agg	gtg	gag	ctg	aca	gag	cca	1800
169	His	Glu	Phe	Glu	Glu	Val	Ala	Ala	Val	Arg	Val	Glu	Leu	Thr	Glu	Pro	
170		545					550					555					
172	gcc	aag	gta	gct	gtc	gag	cca	gcc	aag	gta	cct	gtc	gac	cca	gcc	aag	1848
173	Ala	Lys	Val	Ala	Val	Glu	Pro	Ala	Lys	Val	Pro	Val	Asp	Pro	Ala	Lys	
174	560					565					570					575	
176	gca	gcc	ccc	gcg	cct	gct	gag	gag	aag	gcc	aag	gcg	cg	tgc	cca	gtg	1896
177	Ala	Ala	Pro	Ala	Pro	Ala	Glu	Glu	Lys	Ala	Lys	Ala	Arg	Cys	Pro	Val	
178					580					585						590	
180	ccc	agg	aga	agg	cag	tgg	tac	cca	ttg	tca	agg	aag	ctg	aga	aca	agt	1944
181	Pro	Arg	Arg	Arg	Gln	Trp	Tyr	Pro	Leu	Ser	Arg	Lys	Leu	Arg	Thr	Ser	
182					595				600							605	
184	tgt	cca	gaa	cct	cg	ctc	ctt	gcg	gag	gag	gta	gca	gtg	cag	agt	gcg	1992
185	Cys	Pro	Glu	Pro	Arg	Leu	Leu	Ala	Glu	Glu	Val	Ala	Val	Gln	Ser	Ala	
186			610					615					620				
188	gaa	gac	cca	gcc	agt	ggg	agc	aga	gcg	tct	gtg	gat	gcc	agc	agt	gct	2040
189	Glu	Asp	Pro	Ala	Ser	Gly	Ser	Arg	Ala	Ser	Val	Asp	Ala	Ser	Ser	Ala	
190		625					630						635				
192	tcg	gga	caa	agc	ggg	agt	gcc	aaa	gta	ctg	atc	tcc	acc	ctg	gtg	ccc	2088
193	Ser	Gly	Gln	Ser	Gly	Ser	Ala	Lys	Val	Leu	Ile	Ser	Thr	Leu	Val	Pro	

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197 Leu Gly Leu Val Leu Ala Ala Gly Ala Met Ala Val Ala Ile Ala Arg
198                               660                               665                               670
200 gcc cgg cac agg agg aac gtg gac cga gtt tcc atc gga agc tac agg 2184
201 Ala Arg His Arg Arg Asn Val Asp Arg Val Ser Ile Gly Ser Tyr Arg
202                               675                               680                               685
204 aca gac att agc atg tca gac ttg gag aac tcc agg gag ttc gga gcc 2232
205 Thr Asp Ile Ser Met Ser Asp Leu Glu Asn Ser Arg Glu Phe Gly Ala
206                               690                               695                               700
208 att gac aac cca agc gcc tgc ccc gat gcc cgg gag acg gcc ctc gga 2280
209 Ile Asp Asn Pro Ser Ala Cys Pro Asp Ala Arg Glu Thr Ala Leu Gly
210                               705                               710                               715
212 gga aag gat gag tta gcg acg gcc acc gag agc acc gtg gag att gag 2328
213 Gly Lys Asp Glu Leu Ala Thr Ala Thr Glu Ser Thr Val Glu Ile Glu
214 720                               725                               730                               735
216 gag ccc aag aag gca aaa cgg tca tcc aag gaa gaa gcc gac ctg gcc 2376
217 Glu Pro Lys Lys Ala Lys Arg Ser Ser Lys Glu Glu Ala Asp Leu Ala
218                               740                               745                               750
220 tac tca gct ttc ctg ctc caa tcc aac acc ata gct gct gag cac caa 2424
221 Tyr Ser Ala Phe Leu Leu Gln Ser Asn Thr Ile Ala Ala Glu His Gln
222                               755                               760                               765
224 gat ggc ccc aag gag gcc tag gcacagccgg ccaccgccgc cgccgccacc 2475
225 Asp Gly Pro Lys Glu Ala
226                               770
228 gccgccgccg ccgccacctg tgaaaatcac cttccagaat cacgttgatc ctccgggtcc 2535
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234 ccgttggggg ggggtgtgta ggggttcccta cttgcagccc ggttctcccg agagaagcta 2715
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256 cattcgtgcc ccgtgtgtct gaagagtcc cagtggaaag aagaaaagag ggtgtttgtc 3375
258 agtgccgggg agggcctgat cccagacag ctgaagtta aggtccttgt ccctgtgagc 3435
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275              20              25              30
277 Glu Val Asn Val Leu Glu Gly Asp Ser Val Ser Ile Thr Cys Tyr Tyr
278              35              40              45
280 Pro Thr Thr Ser Val Thr Arg His Ser Arg Lys Phe Trp Cys Arg Glu
281              50              55              60
283 Glu Glu Ser Gly Arg Cys Val Thr Leu Ala Ser Thr Gly Tyr Thr Ser
284 65              70              75              80
286 Gln Glu Tyr Ser Gly Arg Gly Lys Leu Thr Asp Phe Pro Asp Lys Gly
287              85              90              95
289 Glu Phe Val Val Thr Val Asp Gln Leu Thr Gln Asn Asp Ser Gly Ser
290              100             105             110
292 Tyr Lys Cys Gly Val Gly Val Asn Gly Arg Gly Leu Asp Phe Gly Val
293              115             120             125
295 Asn Val Leu Val Ser Gln Lys Pro Glu Pro Asp Asp Val Val Tyr Lys
296              130             135             140
298 Gln Tyr Glu Ser Tyr Thr Val Thr Ile Thr Cys Pro Phe Thr Tyr Ala
299 145             150             155             160
301 Thr Arg Gln Leu Lys Lys Ser Phe Tyr Lys Val Glu Asp Gly Glu Leu
302              165             170             175
304 Val Leu Ile Ile Asp Ser Ser Ser Lys Glu Ala Lys Asp Pro Arg Tyr
305              180             185             190
307 Lys Gly Arg Ile Thr Leu Gln Ile Gln Ser Thr Thr Ala Lys Glu Phe
308              195             200             205
310 Thr Val Thr Ile Lys His Leu Gln Leu Asn Asp Ala Gly Gln Tyr Val
311              210             215             220
313 Cys Gln Ser Gly Ser Asp Pro Thr Ala Glu Glu Gln Asn Val Asp Leu
314 225             230             235             240
316 Arg Leu Leu Thr Pro Gly Leu Leu Tyr Gly Asn Leu Gly Gly Ser Val
317              245             250             255
319 Thr Phe Glu Cys Ala Leu Asp Ser Glu Asp Ala Asn Ala Val Ala Ser
320              260             265             270
322 Leu Arg Gln Val Arg Gly Gly Asn Val Val Ile Asp Ser Gln Gly Thr
323              275             280             285
325 Ile Asp Pro Ala Phe Glu Gly Arg Ile Leu Phe Thr Lys Ala Glu Asn
326              290             295             300
328 Gly His Phe Ser Val Val Ile Ala Gly Leu Arg Lys Glu Asp Thr Gly
329 305             310             315             320
331 Asn Tyr Leu Cys Gly Val Gln Ser Asn Gly Gln Ser Gly Asp Gly Pro
332              325             330             335
334 Thr Gln Leu Arg Gln Leu Phe Val Asn Glu Glu Ile Asp Val Ser Arg
335              340             345             350
337 Ser Pro Pro Val Leu Lys Gly Phe Pro Gly Gly Ser Val Thr Ile Arg
338              355             360             365
340 Cys Pro Tyr Asn Pro Lys Arg Ser Asp Ser His Leu Gln Leu Tyr Leu
341              370             375             380
343 Trp Glu Gly Ser Gln Thr Arg His Leu Leu Val Asp Ser Gly Glu Gly
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**VERIFICATION SUMMARY**

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